

What Is Claimed Is:

1. A flat luminescence lamp, comprising:

- a first substrate having a first surface and a second surface;
- a second substrate having a first surface disposed facing opposite to the first surface of the first substrate;
- a first luminescence layer formed on the first surface of the first substrate;
- a second luminescence layer formed on the first surface of the second substrate; and,
- a plurality of grooves formed on the second surface of the first substrate.

2. The flat luminescence lamp according to claim 1, wherein the grooves are formed as a matrix unit with the first substrate.

3. The flat luminescence lamp according to claim 1, wherein the luminescence layer includes first electrodes formed upon the first substrate, second electrodes formed upon a surface of the second substrate opposite to the first substrate, a first fluorescent material layer formed upon the first electrodes, and a second fluorescent material layer formed on the second electrodes.

4. The flat luminescence lamp according to claim 1, wherein the first substrate is formed of metal or ceramic, and the second substrate is formed of glass.

Just as
5. A flat luminescence lamp, comprising:

a first substrate having a first surface and a second surface;

a plurality of grooves formed on the second surface of the first substrate;

a second substrate having a first surface and a second surface, the first surface of the first substrate opposing the first surface of the second substrate;

a plurality of first electrodes formed on the first surface of the first substrate;

a plurality of second electrodes formed on the first surface of the second substrate opposing the first electrodes;

a first fluorescent material layer formed on the first surface of the first substrate;

a second fluorescent material layer formed on the first surface of the second substrate opposing the first fluorescent material layer; and

a plurality of frame portions formed on the first surface of the first substrate and the first surface of the second substrate to seal the first substrate and the second substrate.

6. The flat luminescence lamp according to claim 5, wherein the first substrate is formed of metal or ceramic, and the second substrate is formed of glass.

7. The flat luminescence lamp according to claim 5, wherein the first substrate includes a first flat layer of a fixed area, and a second layer formed upon the first flat layer, wherein the second layer is formed of a matrix.

8. The flat luminescence lamp according to claim 5, further comprising an insulating layer formed upon the first surface of the first substrate.

9. The flat luminescence lamp according to claim 5, further comprising a first dielectric layer formed on the first substrate to cover the first electrodes, and a second dielectric layer formed on the second substrate to cover the second electrodes.

10. The flat luminescence lamp according to claim 9, further comprising a reflective material layer formed on the first dielectric layer.

11. The flat luminescence lamp according to claim 5, wherein the second electrode is formed of a transparent conductive material.

12. A method for fabricating a flat luminescence lamp comprising the steps of:

forming a first substrate having a plurality of grooves on a first surface;

forming a plurality of first electrodes on the first substrate;

forming a plurality of second electrodes on a second substrate disposed opposite to the first substrate;

forming a first fluorescent material layer on a second surface of the first substrate;

forming a second fluorescent material layer formed on a surface of the second substrate; and

forming a discharge space between the first substrate and the second substrate with a frame disposed between the first substrate and the second substrate.

13. The method according to claim 12, further comprising a step of forming an insulating film upon the first substrate.

14. The method according to claim 13, wherein the plurality of first electrodes are formed upon the insulating layer.

15. The method according to claim 12, further comprising a step of forming a dielectric material layer between the plurality of first electrodes and the first fluorescent material layer, and forming a second dielectric material layer between the plurality of second electrodes and the second fluorescent material layer.

16. The method according to claim 12, further comprising steps of:

bonding the first substrate and the second substrate to oppose each other after the steps of forming the first and second fluorescent material layers; and

injecting a discharge gas into the discharge space between the first substrate and the second substrate.

17. The method according to claim 12, wherein the frame is formed from a paste made of a glass material.

18. The method according to claim 12, wherein the step of forming the first substrate includes the steps of coating a photosensitive material on a first surface of a metal layer, patterning the photosensitive material to form a mask pattern of a matrix form, and etching the metal layer to a depth by using the mask pattern as a mask.

19. The method according to claim 13, wherein the insulating layer is formed to a predetermined thickness to electrically insulate the first substrate from the plurality of first electrodes.

20. The method according to claim 15, further comprising the step of forming a reflective material layer upon the first dielectric material layer.

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